



1	1. A method for determining patches to apply to a computer system, wherein the	
2	patches includes content to add to the computer, comprising:	
3	providing a realization list of realization identifiers corresponding to realizations	
4	associated with the computer, wherein each realization defines a state of the computer;	
5	providing a realization database of realization objects, wherein each realization object is	
6	uniquely identified by a realization identifier of one realization and includes a patch list indicating	
7	those patches whose installation relates to the computer state defined by the realization;	
8	accessing from the realization database the patch lists of those realization objects whose	
9	realization identifiers match the realizations identifiers on the realization list;	
10	determining all the patches on the accessed patch lists; and	
11	determining from the determined patches on the accessed patch lists those patches that	
12	are capable of being installed on the computer.	
1	2. The method of claim 1, wherein the patch content to add to the computer is	
2	capable of comprising one of: a new program; an upgrade to an installed program; a fix to an	
3	installed program; and documentation.	
1	3. The method of claim 1, further comprising:	
2	providing a searchable realization index in the realization database; and	
3	for each realization identifier on the realization list, using the realization identifier to	
4	access an entry in the realization index, wherein each entry in the realization index identifies one	
5	corresponding realization object in the realization database, and wherein the entry is used to	
6	access the corresponding realization object in the realization database.	



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x implements a binary tree

1	4. The method of claim 3, wherein the realization index implements a binary tree	
2	index.	
1	5. The method of claim 1, further comprising:	
2	presenting information on an output device of those determined patches capable of	
3	being installed on the computer; and	
4	receiving user selection of one or more patches to add to the computer indicated in the	
5	presented information.	
1	6. The method of claim 5, further comprising:	
2	requesting from a server the patch content for the user selected patches;	
3	receiving the patch content for the selected patches from the server; and	
4	applying the patch content to the computer.	
1	7. The method of claim 1, further comprising:	
2	providing a searchable patch database including patch objects corresponding to one	
3	patch of content and including a patch expression set comprised of one or more patch	

- patch of content and including a patch expression set comprised of one or more patch
 expressions;
- accessing from the patch database those patch objects for the determined patches on the accessed patch lists; and
- executing the patch expression sets in the accessed patch objects to determine patches identified by the accessed patch objects capable of being installed on the computer.
- 1 8. The method of claim 7, further comprising:
- 2 generating a computer object including configuration information on components in the
- 3 computer, wherein the executed patch expression sets are capable of processing configuration

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information and the realization list to determine whether the patch is capable of	of being installed
on the computer.	

1	9. The method of claim 7, further comprising:
2	providing a searchable patch index into the patch database, wherein each entry in the
3	patch index identifies one corresponding patch object in the patch database representing one
4	patch, wherein the patch index entry is used to access the corresponding patch object in the
5	patch database.

10. The method of claim 9, wherein each patch is associated with one patch identifier, wherein the entries in the patch index include the patch identifier of the patch represented by the corresponding patch object, further comprising: searching the patch index for those entries including patch identifiers matching the patch identifiers of the determined patches from the accessed patch lists.

A method for determining patches to apply to a computer system, wherein the

2 patches include content to add to the computer, comprising: 3 generating a computer object including configuration information on components in the 4 computer and a realization list of realization identifiers corresponding to realizations associated 5 ^ with the computer, wherein each realization defines a state of the computer; 6 downloading a realization database of realization objects from a patch server, wherein 7 each realization object is uniquely identified by a realization identifier of one realization and 8 includes a patch list indicating those patches whose installation relates to the computer state 9 defined by the realization; 10 accessing from the realization database the patch lists of those realization objects whose

realization identifiers match the realizations identifiers on the realization list;

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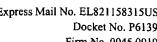
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- 12 determining all the patches on the accessed patch lists; and 13 determining from the determined patches on the accessed patch lists those patches that 14 are capable of being installed on the computer.
- 1 12. The method of claim 11, wherein the steps of downloading the realization 2 database, accessing the patch lists, determining all the patches on the accessed patch lists, and 3 determining those patches capable of being installed on the computer are performed in the 4 computer.
 - 13. The method of claim 11, wherein a network administrator system includes a plurality of computer objects associated with a plurality of computers on a network, wherein each computer object includes the configuration information and the realization list for one computer on the network, and wherein the steps of downloading the realization database, accessing the patch lists, determining all the patches on the accessed patch lists, and determining those patches capable of being installed on the computer are performed on the network administrator system.
- 1 14. The method of claim 11, wherein the steps of accessing from the realization 2 database the patch lists of those realization objects whose realization identifiers match the 3 realizations identifiers on the realization list are performed for the realization lists in the computer 4 objects for the computers on the network, wherein the patches are determined from the patch 5 lists for the computer objects, and wherein the determined patches on the accessed patch lists 6 are those patches that are capable of being installed on the computers in the network.

generating a list of all patches determined to be compatible with the installed

The method of claim 14, further comprising:



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4	rendering the list of patches on an output device to enable a user of the network	
5	administrator system to select the code of one or more of the patches on the list to install on one	
6	or more of the computers in the network.	
1	16. A system for determining patches to apply to a computer, wherein the patches	
2	include content to add to the computer, comprising:	
3	means for providing a realization list of realization identifiers corresponding to	
4	realizations associated with the computer, wherein each realization defines a state of the	
5	computer;	
6	means for providing a realization database of realization objects, wherein each	
7	realization object is uniquely identified by a realization identifier of one realization and includes a	
8	patch list indicating those patches whose installation relates to the computer state defined by the	
9	realization;	
10	means for accessing from the realization database the patch lists of those realization	
11	objects whose realization identifiers match the realizations identifiers on the realization list;	

patches that are capable of being installed on the computer.

components of the computers on the network; and

1 17. The system of claim 16, wherein the patch content to add to the computer is 2 capable of comprising one of: a new program; an upgrade to an installed program; a fix to an 3 installed program; and documentation.

means for determining all the patches on the accessed patch lists; and

means for determining from the determined patches on the accessed patch lists those

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further comprising:

1 18. The system of claim 16, further comprising: 2 means for providing a searchable realization index in the realization database; and 3 means for using the realization identifier to access an entry in the realization index for each realization identifier on the realization list, wherein each entry in the realization index 4 identifies one corresponding realization object in the realization database, and wherein the entry 5 is used to access the corresponding realization object in the realization database. 6 1 19. The system of claim 18, wherein the realization index implements a binary tree 2 index. 1 20. The system of claim 16, further comprising: 2 an output device; means for presenting information on then output device of those determined patches 3 4 capable of being installed on the computer; and 5 means for receiving user selection of one or more patches to add to the computer 6 indicated in the presented information. The system of claim 20, wherein the system is in communication with a server, 1 21.

means for requesting from the server the patch content for the user selected patches;

means for receiving the patch content for the selected patches from the server; and

means for applying the patch content to the computer.

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1	22. The system of claim 16, further comprising:	
2	means for providing a searchable patch database including patch objects corresponding	
3	to one patch of content and including a patch expression set comprised of one or more patch	
4	expressions;	
5	means for accessing from the patch database those patch objects for the determined	
6	patches on the accessed patch lists; and	
7	means for executing the patch expression sets in the accessed patch objects to	
8	determine patches identified by the accessed patch objects capable of being installed on the	
9	computer.	
1	23. The system of claim 22, further comprising:	
2	means for generating a computer object including configuration information on	

- 24. The system of claim 22, further comprising:
- 2 means fo providing a searchable patch index into the patch database, wherein each

components in the computer, wherein the executed patch expression sets are capable of

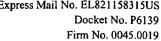
processing configuration information and the realization list to determine whether the patch is

- 3 entry in the patch index identifies one corresponding patch object in the patch database
- 4 representing one patch, wherein the patch index entry is used to access the corresponding
- 5 patch object in the patch database.

capable of being installed on the computer.

- 1 25. The system of claim 24, wherein each patch is associated with one patch
- 2 identifier, wherein the entries in the patch index include the patch identifier of the patch
- 3 represented by the corresponding patch object, further comprising:





4 means for searching the patch index for those entries including patch identifiers matching 5 the patch identifiers of the determined patches from the accessed patch lists.

1	26. A system for determining patches to apply on a computer, wherein the patches	
2	include content to add to the computer, comprising:	
3	means for generating a computer object including configuration information on	
4	components in the computer and a realization list of realization identifiers corresponding to	
5	realizations associated with the computer, wherein each realization defines a state of the	
6	computer;	
7	means for downloading a realization database of realization objects from a patch server	
8	wherein each realization object is uniquely identified by a realization identifier of one realization	
9	and includes a patch list indicating those patches whose installation relates to the computer state	
10	defined by the realization;	
11	means for accessing from the realization database the patch lists of those realization	
12	objects whose realization identifiers match the realizations identifiers on the realization list;	
13	means for determining all the patches on the accessed patch lists; and	
14	means for determining from the determined patches on the accessed patch lists those	
15	patches that are capable of being installed on the computer.	

1 27. The system of claim 26, wherein the means for downloading the realization 2 database, accessing the patch lists, determining all the patches on the accessed patch lists, and 3 determining those patches capable of being installed on the computer are performed in the computer.

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1	28.	The system of claim 26, further comprising:
2	a netwo	ork administrator system including a plurality of computer objects associated
3	with a plurality	of computers on a network, wherein each computer object includes the
4	configuration in	nformation and the realization list for one computer on the network, and wherein
5	the means for o	lownloading the realization database, accessing the patch lists, determining all the
6	patches on the	accessed patch lists, and determining those patches capable of being installed on
7	the computer a	re performed on the network administrator system.
1	29.	The system of claim 26, wherein the means for accessing from the realization
2	database the pa	tch lists of those realization objects whose realization identifiers match the
3	realizations ide	ntifiers on the realization list are performed for the realization lists in the computer
4	objects for the	computers on the network, wherein
5	the patches are	determined from the patch lists for the computer objects, and wherein the
6	determined pat	ches on the accessed patch lists are those patches that are capable of being
7	installed on the	computers in the network.
1	30.	The system of claim 29, further comprising:

components of the computers on the network; and
 means for rendering the list of patches on the output device to enable a user of the
 network administrator system to select the code of one or more of the patches on the list to

means for generating a list of all patches determined to be compatible with the installed

install on one or more of the computers in the network.

an output device;

1 31. An article of manufacture for determining patches to apply to a computer 2 system, wherein the patches includes content to add to the computer, by:

3	providing a realization list of realization identifiers corresponding to realizations		
4	associated with the computer, wherein each realization defines a state of the computer;		
5	providing a realization database of realization objects, wherein each realization object is		
6	uniquely identified by a realization identifier of one realization and includes a patch list indicating		
7	those patches whose installation relates to the computer state defined by the realization;		
8	accessing from the realization database the patch lists of those realization objects whos		
9	realization identifiers match the realizations identifiers on the realization list;		
10	determining all the patches on the accessed patch lists; and		
11	determining from the determined patches on the accessed patch lists those patches that		
12	are capable of being installed on the computer.		
1	32. The article of manufacture of claim 31, wherein the patch content to add to the		
2	computer is capable of comprising one of: a new program; an upgrade to an installed program;		
3	a fix to an installed program; and documentation.		

- 1 33. The article of manufacture of claim 31, further comprising: 2 providing a searchable realization index in the realization database; and 3 for each realization identifier on the realization list, using the realization identifier to 4 access an entry in the realization index, wherein each entry in the realization index identifies one 5 corresponding realization object in the realization database, and wherein the entry is used to 6 access the corresponding realization object in the realization database.
- 1 34. The article of manufacture of claim 33, wherein the realization index implements 2 a binary tree index.

on the computer.

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1	35. The article of manufacture of claim 31, further comprising:	
2	presenting information on an output device of those determined patches capable of	
3	being installed on the computer; and	
4	receiving user selection of one or more patches to add to the computer indicated in the	
5	presented information.	
1	36. The article of manufacture of claim 35, further comprising:	
2	requesting from a server the patch content for the user selected patches;	
3	receiving the patch content for the selected patches from the server; and	
4	applying the patch content to the computer.	
1	37. The article of manufacture of claim 31, further comprising:	
2	providing a searchable patch database including patch objects corresponding to one	
3	patch of content and including a patch expression set comprised of one or more patch	
4	expressions;	
5	accessing from the patch database those patch objects for the determined patches on	
6	the accessed patch lists; and	
7	executing the patch expression sets in the accessed patch objects to determine patch	
8	identified by the accessed patch objects capable of being installed on the computer.	
1	38. The article of manufacture of claim 37, further comprising:	
2	generating a computer object including configuration information on components in the	
3	computer, wherein the executed patch expression sets are capable of processing configuration	

information and the realization list to determine whether the patch is capable of being installed





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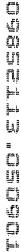
1	39. The article of manufacture of claim 37, further comprising:		
2	providing a searchable patch index into the patch database, wherein each entry in the		
3	patch index identifies one corresponding patch object in the patch database representing one		
4	patch, wherein the patch index entry is used to access the corresponding patch object in the		
5	patch database.		
1	40. The article of manufacture of claim 39, wherein each patch is associated with		
2	one patch identifier, wherein the entries in the patch index include the patch identifier of the		
3	patch represented by the corresponding patch object, further comprising:		
4	searching the patch index for those entries including patch identifiers matching the patch		
5	identifiers of the determined patches from the accessed patch lists.		
1	41. An article of manufacture for determining patches to apply to a computer		
2	system, wherein the patches include content to add to the computer, comprising:		
3	generating a computer object including configuration information on components in the		
4	computer and a realization list of realization identifiers corresponding to realizations associated		
5	with the computer, wherein each realization defines a state of the computer;		
6	downloading a realization database of realization objects from a patch server, wherein		
7	each realization object is uniquely identified by a realization identifier of one realization and		
8	includes a patch list indicating those patches whose installation relates to the computer state		
9	defined by the realization;		
10	accessing from the realization database the patch lists of those realization objects whose		
11	realization identifiers match the realizations identifiers on the realization list;		
12	determining all the patches on the accessed patch lists; and		
13	determining from the determined patches on the accessed patch lists those patches that		
14	are capable of being installed on the computer.		





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- 1 42. The article of manufacture of claim 41, wherein the steps of downloading the 2 realization database, accessing the patch lists, determining all the patches on the accessed patch lists, and determining those patches capable of being installed on the computer are performed in 3 4 the computer.
- 1 43. The article of manufacture of claim 41, wherein a network administrator system 2 includes a plurality of computer objects associated with a plurality of computers on a network, 3 wherein each computer object includes the configuration information and the realization list for 4 one computer on the network, and wherein the steps of downloading the realization database, 5 accessing the patch lists, determining all the patches on the accessed patch lists, and determining those patches capable of being installed on the computer are performed on the 6 7 network administrator system.
- 1 44. The article of manufacture of claim 41, wherein the steps of accessing from the 2 realization database the patch lists of those realization objects whose realization identifiers 3 match the realizations identifiers on the realization list are performed for the realization lists in the 4 computer objects for the computers on the network, wherein 5 the patches are determined from the patch lists for the computer objects, and wherein the determined patches on the accessed patch lists are those patches that are capable of being 6 7 installed on the computers in the network.
- 1 45. The article of manufacture of claim 44, further comprising: 2 generating a list of all patches determined to be compatible with the installed 3 components of the computers on the network; and



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rendering the list of patches on an output device to enable a user of the network administrator system to select the code of one or more of the patches on the list to install on one or more of the computers in the network.

46. A computer readable medium including data structures used to determining patches to apply to a computer system, wherein the patches includes content to add to the computer, comprising:

a realization list of realization identifiers corresponding to realizations associated with

the computer, wherein each realization defines a state of the computer;

a realization database of realization objects, wherein each realization object is uniquely identified by a realization identifier of one realization and includes a patch list indicating those patches whose installation relates to the computer state defined by the realization, wherein the patch lists are accessed from the realization objects in the realization database whose realization identifiers match the realizations identifiers on the realization list, wherein a determination is made of all the patches on the accessed patch lists, and wherein a determination is made from the determined patches on the accessed patch lists of those patches that are capable of being installed on the computer.

47. The computer readable medium of claim 46, further comprising:

a searchable realization index in the realization database, wherein the realization

3 identifier for each realization on the realization list is used to access an entry in the realization

4 index, wherein each entry in the realization index identifies one corresponding realization object

5 in the realization database, and wherein the entry is used to access the corresponding realization

6 object in the realization database.





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1	48.	The computer readable medium of claim 47, wherein the realization index
2	implements a b	inary tree index.

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I	49. The computer readable medium of claim 46, further comprising:
2	a searchable patch database including patch objects corresponding to one patch of
3	content and including a patch expression set comprised of one or more patch expressions,
4	wherein the patch objects for the determined patches on the accessed patch lists are accessed
5	from the patch database, and wherein the patch expression sets in the accessed patch objects
6	are executed to determine patches identified by the accessed patch objects capable of being
7	installed on the computer.

- The computer readable medium of claim 49, further comprising:

 a computer object including configuration information on components in the computer,

 wherein the executed patch expression sets are capable of processing configuration information

 and the realization list to determine whether the patch is capable of being installed on the

 computer.
- 1 51. The computer readable medium of claim 49, further comprising:
 2 a searchable patch index into the patch database, wherein each entry in the patch index
 3 identifies one corresponding patch object in the patch database representing one patch, wherein
 4 the patch index entry is used to access the corresponding patch object in the patch database.
- 1 52. A computer readable medium including data structures used for determining 2 patches to apply to a computer system, wherein the patches include content to add to the 3 computer, comprising:

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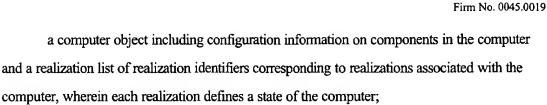
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computer, wherein each realization defines a state of the computer;

a realization database of realization objects from a patch server, wherein each realization object is uniquely identified by a realization identifier of one realization and includes a patch list indicating those patches whose installation relates to the computer state defined by the realization, wherein patch lists are accessed from those realization objects in the realization database whose realization identifiers match the realizations identifiers on the realization list, wherein a determination is made of all the patches on the accessed patch lists, and wherein a determination is made from the determined patches on the accessed patch lists of those patches that are capable of being installed on the computer.